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## ANNEX E: INFORMATION SUPERIORITY

### General

Information Superiority (IS) refers to the attainment of superior information flow that supports mission objectives. Achieving IS requires the establishment of an integrated system of systems (SoS) capability that effectively collects, processes, disseminates, and uses information while exploiting or denying an adversary's ability to do the same. IS is a critical enabler to a realization of the *Joint Vision 2020 (JV 2020)* capabilities. As such, IS must bridge the full spectrum of operations against a wide range of threats and combat environments.

Army Transformation seeks to create an Objective Force that is dominant across the full spectrum of military operations. Achieving this goal requires a significant exploitation of information age science and technology (S&T). Integration of information age S&T across Army systems to achieve the objectives of *JV 2020* fundamentally changes the legacy stovepipe paradigm into one that focuses on network centric operations. At the center of the new paradigm is the recognition that the benefits of IS come from the ability to fully leverage an integrated command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) and weapons systems SoS infrastructure, which has information age technology at its core.

In the aggregate, technologies underpinning IS are central to the

Army's ability to achieve the Objective Force characteristics. Over time, the goal is to harmonize requirements and evolutionary development through the incremental maturation and insertion of technologies to achieve a robust C4ISR infrastructure in support of Army Transformation and the Objective Force. Integrated SoS requirements linked to affordable technology solutions will provide the roadmap for capability enhancements leading to the Objective Force.

Although the Army considers IS to be an integrated capability across the full spectrum of operations, it is through synergistic, integrated, and interoperable individual systems and programs that this capability is acquired. The Army's Modernization Program that spans S&T through fielding is the conduit through which real assets are acquired in support of IS. Fielding of systems will be done through the Unit Set Fielding and Total Package Fielding concepts. Adherence to these concepts will ensure IS capabilities are provided in an integrated and synchronized way to Army units.

The Army functional areas that primarily support the achievement of IS are Command, Control and Signal; Intelligence and Electronic Warfare; and Engineers, which offer specified support through select systems. In addition, some key fire support, logistics, and air defense systems support IS.

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## Command, Control, and Signal Systems

### Overview

Command, Control, and Signal Systems enable seamless, protected, survivable, integrated, and dynamic information services to the warfighter for achieving Information Superiority across the full spectrum of operations. These information technology systems provide the capability for getting relevant information to the right place at the right time.

The Command, Control, and Signal Systems are critical to maintaining our IS edge across the full spectrum of conflict. Command and control (C2) systems have improved the ability to prepare and execute movement plans with standardization and commonality among automation hardware and software operating systems. Additionally, the systems are meeting the current functional requirements of our commanders and staff. The signal systems have ensured an inter-netted communications capability within the Army and joint/coalition forces. These systems are providing our tactical elements with transparent connectivity for voice, data, and video teleconference and communications systems throughout the operational spectrum.

Army modernization must ensure the synchronization of communications-related efforts and a modernization strategy toward achieving IS across the full spectrum of potential missions—now and in the future. It protects the research, development, and procurement of key information systems and services for ensuring IS that supports the Army's Transformation efforts.

In a capabilities-based force, IS is measured by the ability to make informed decisions faster and to sustain operations longer and faster than your opponent. Command, Control, and Signal Systems are the glue for the effective employment of the Army Vision's goals toward the Objective Force. Additionally, these systems must be more deployable and lighter in supporting a smaller and more combat-effective force. In the final analysis, commanders will require accurate and timely information that will allow them to influence the actions of their opponents.

### Command, Control, and Signal Systems Modernization in Support of Transformation

#### Overview

Modernizing our Army to be an agile, lighter, and more deployable force capable of maintaining IS will require a robust Command, Control, Communications, and Computers (C4) architecture specifically designed to meet the dramatically increasing information and data requirements of

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the modernized force. Achieving IS in the 1st Cavalry Division (2003) and III Corps (2004) remains a priority, followed by the Interim Brigade Combat Teams (IBCTs). A broad overview of some key programs and their relationship to our modernization goals are discussed in the following paragraphs.

The Army Battle Command System (ABCS) concept provides for the overall integration of digital C2 systems found at all echelons from theater level to the weapons platforms. The components that fuse and display the common picture are the Global Command and Control System–Army (GCCS-A), Maneuver Control System (MCS), and the Force XXI Battle Command Brigade and Below System (FBCB2). Additionally, the linkage of these C2 systems (via the Tactical Operations Centers (TOCs) and Standardized Integrated Command Post System (SICPS) programs) provides our tactical forces with a functional C2 suite that significantly reduces the logistical footprint. Hence, we have both the desktop and sheltering requirement to include the local area network (LAN). Currently, MCS and FBCB2 are being equipped to IBCTs and III Corps units, to include appropriate Reserve Component (RC) units at echelons above division. We must continue our S&T investment to improve their capabilities and transition into the Objective Force.

The terrestrial and switching backbone of our communications infrastructure network represents our single greatest deficiency in transforming from our Legacy Force. The Army Common User System (ACUS) modernization

program recapitalizes our existing Mobile Subscriber Equipment (MSE) and Tri-Service Tactical Communications (TRI-TAC) switching network systems for the known requirement of today's forces. At the lower level, the Tactical Internet (TI) comprises the communications infrastructure for the transfer of information across the battlefield. The Enhanced Position Location Reporting System (EPLRS) and Single Channel Ground and Airborne Radio System (SINCGARS) are currently the communications systems of the TI. With the ever-increasing voice and data requirements, this emerged as another area requiring improvement to maintain IS and applicability into the future.

To extend the communications links beyond line-of-sight (BLOS) and obtain the critical reachback capability, the Army will rely on satellite communications (both government-owned and commercial lease). Our current Defense Satellite Communications System (DSCS) ground terminals (AN/TSC-85s and AN/TSC-93s) are antiquated and do not meet the deployability requirement of a transforming Force (Interim or Objective). Due to the critical importance of space-based communications, these legacy systems are being replaced by the Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T), and the Super High Frequency (SHF) Tri-Band Advanced Range Extension Terminal (STAR-T). The SMART-T and STAR-T will provide immediate improvements to our Legacy and Interim Forces. Additionally, we have a long-term investment in the Single Channel Anti-

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Jam Manportable (SCAMP) manpack terminal and the Global Broadcast Service (GBS).

Focused and consistent investments in S&T that exploit technological development are the centerpiece for maintaining IS, which is crucial to our Modernization Program. As we prepare for the Objective Force, our research and development (R&D) efforts must transform vast amounts of data into usable information and knowledge for the warfighter.

Our network architectures and technical standards will continue to evolve. With the growing requirement for information and a more responsive force, the Warfighter Information Network-Tactical (WIN-T) will increase the security, capacity, and speed of information distribution; support split-based operations; and increase mobility with a smaller logistical footprint. In concert with the other Services, the Joint Tactical Radio System (JTRS) will become the Army's primary tactical radio for mobile communications. This lightweight, multiband radio will provide embedded voice, data, and video teleconference capability. Additionally, it will replace multiple legacy radio systems within the Army's inventory and will be a key component of the TI. The future Multiband Integrated Satellite Terminal (MIST) will replace the STAR-T and SMART-T to provide the warfighter with BLOS and reachback communications.

### **Discussion of Equipment**

The following systems are currently in the force structure and require immediate maintenance or upgrades to

support readiness and Transformation and the increased information/data requirements of the force. Although investing into a future communications infrastructure, we have allocated significant resources to ensure these programs remain relevant on today's battlefield.

### **Enhanced Position Location Reporting System (EPLRS)**

#### **Description.**

EPLRS provides automated, secure, near-real-time data communications and Position/Navigation (POS/NAV) services for the digitized force. EPLRS consists of a Network Control Station (NCS) and radio sets with embedded Communications Security (COMSEC), which can be configured as vehicular, manpack and airborne units.



**Operational Requirement.** EPLRS provides commanders with highly reliable, automated, secure, near-real-time data communications and POS/NAV services as the digital data backbone of Force XXI Battle Command Brigade and Below (FBCB2) and Battlefield Functional Areas (BFA). EPLRS, in conjunction with FBCB2, will provide the majority of the Army's input to the Common Tactical Picture (CTP) and the Common Operational Picture (COP).

**Program Status.** The Army will procure and field EPLRS to the Counterattack Corps, Force Package 1, and other high-priority users. Current EPLRS Army Procurement Objective (APO) is

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12,896. Approximately 2,600 radios have been fielded.

**Single Channel Ground and Airborne Radio System (SINCGARS)**



**Description.** SINCGARS provides commanders with a highly reliable, secure, easily maintained Combat Net Radio (CNR) that has both voice and data handling capability in support of C2 operations. SINCGARS, with the Internet controller, provides the communications link for the digitized force. The Advanced System Improvement Program (ASIP) models are of a reduced size and weight, providing further enhancements to operational capability in the TI environment.

**Operational Requirement.** SINCGARS will provide a highly reliable, secure, easily maintained CNR that has both voice and data handling capability.

**Program Status.** A production delivery order will be awarded in 3QFY01 to procure congressionally directed assets for the Army National Guard (ARNG) and IBCTs. Approximately 164,285 radios have been fielded.

**Defense Satellite Communications System (DSCS)**

**Description.** DSCS provides super high frequency (SHF) wideband satellite communications supporting critical national strategic and tactical Command, Control, Communications, and Intelligence (C3I) requirements. DSCS supports the Army warfighter as well as Department of Defense (DoD) and non-DoD users, as approved by the Joint Staff/Commanders-in-Chief (CINCs) or by the Secretary of Defense (SECDEF). DSCS terminals are designed to operate with the DSCS and NATO satellites and to maintain the warfighter's ability to communicate back to the sustaining base during war and contingency operations.

**Operational**

**Requirement.** DSCS provides high-capacity, inter- and intra-theater range extension support to Army and joint warfighters from corps level and higher. The system is used at all levels of command from the National Command Authorities (NCA) to the tactical theater. The DSCS earth terminal's direct interface with SHF Tri-Band Advanced Range Extension Terminal (STAR-T) is the warfighter's primary means of reachback communications in all levels of conflict.



**Program Status.** DSCS terminals and control centers are undergoing a recapitalization effort (selected upgrade).



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**Army Common User System (ACUS)**  
**Modernization Program (Mobile**  
**Subscriber Equipment (MSE) and**  
**Tri-Service Tactical**  
**Communications (TRI-TAC))**

**Description.** ACUS is the terrestrial communications and information system that currently consists of the TRI-TAC and MSE systems. Upgrades to the systems provide an increased capability to support voice, data, and video requirements in one of two ways—Tactical High Speed Data Network (THSDN) and technology insertion. The ACUS modernization efforts will support the Army's Transformation initiatives by inserting new technologies (Brigade Subscriber Node (BSN), battlefield video-teleconferencing, wireless LAN, and Network Operations Center vehicles (NOC-V)) into the Army's IBCTs.



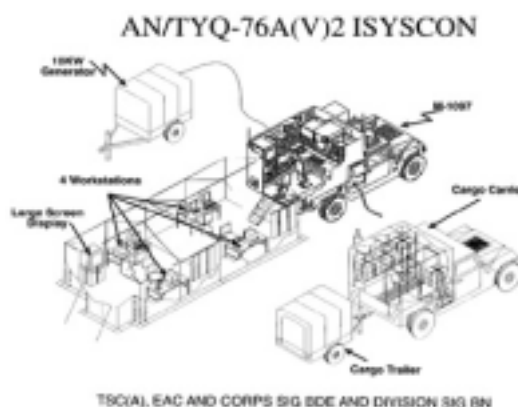
**Operational Requirement.** ACUS modernization provides mobile, secure, survivable, seamless multimedia connectivity between all elements within the battlespace.

**Program Status.** The ACUS Technology Insertion is on track for fielding completion to the Counterattack Corps by 2004. Additionally, THSDN fielding to the remainder of the force was initiated in

FY00 with completion anticipated in FY03.

**Integrated System Control System (ISYSCON)**

**Description.** ISYSCON provides an automated, theater-wide system to manage multiple tactical communications systems in support of battlefield operations. Additionally, ISYSCON interfaces with each BFA in the ABCS.



**Operational Requirement.** ISYSCON will provide centralized control of the data networks that interconnect all C2 systems and all weapon systems on the battlefield.

**Program Status.** The fielding of network management for III Corps elements is on track for 2004.

**Secure Multichannel Anti-Jam**  
**Reliable Terminal-Tactical**  
**(SMART-T)**

**Description.** SMART-T is a transportable, tactical, satellite communications terminal that operates with



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the current Military Strategic and Tactical Relay (MILSTAR) satellite low data rate (LDR) (up to 2.4kbps) and medium data rate (MDR) (up to 1.544mbps) extremely high frequency (EHF) communications payload and the future advanced EHF (AEHF) constellation.

**Operational Requirement.** SMART-T provides protected communications for the in-theater range extension of the Army's MSE at echelons corps and below.

**Program Status.** SMART-T is currently in production and testing.

**SHF Tri-Band Advanced Range Extension Terminal (STAR-T)**

**Description.** STAR-T is a super high frequency (SHF) multiband multichannel satellite terminal. STAR-T is a self-contained, one-vehicle communications package capable of operating over commercial and military SHF satellites, and interfaces with commercial and military switching systems. There will be two versions: switch and standard.

**Operational Requirement.**

STAR-T will provide high-capacity inter- and intra-theater range extension support at echelons above corps (EAC) and selected corps signal units. STAR-T will be the warfighter's primary means of reachback communications. STAR-T will ultimately replace aging ground mobile force satellite terminals (AN/TSC-85s/93s).



**Program Status.** STAR-T is currently in system development.

The following systems are IS enablers. With a block plan for software enhancements, spiral development, and technology insertions, these programs will provide inter-netted communications, improved C2, and a strategically responsive reachback capability. Providing the threshold needs of the Objective Force, these stopgap enhancements provide us with valuable time and critical capabilities during the development of the objective system.

**Global Command and Control System-Army (GCCS-A)**

**Description.** GCCS-A provides the Army's interface to the Joint Staff Global Command and Control System (GCCS) program. GCCS-A provides automated C2 tools for Army strategic and theater commanders to enhance warfighter capabilities throughout the spectrum of conflict during joint and combined operations in support of the NCA. GCCS-A will provide an integrated C2 system capable of exchanging data both horizontally and vertically throughout the Army hierarchy.



**Operational Requirement.** GCCS-A links joint and tactical commanders throughout the battlefield. It displays, maintains, and digitally exchanges CTP data with GCCS and other

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ABCSs. GCCS-A provides tools to shape decisive deployment and sustainment operations. It inputs the Army's information into the CINC's COP.

**Program Status.** The GCCS-A program completed the replacement of the legacy Army Worldwide Military Command and Control System (WWMCCS) Information System (AWIS), Standard Theater Army Command and Control System (STACCS), and Theater Army Command and Control Information Management System (TACCIMS) during FY99. GCCS-A continues the development of a single baseline system and achieves and maintains full integration of GCCS-A into the ABCS.

#### **Maneuver Control System (MCS)**



**Description.** MCS is an automated C2 system that provides a network of computer terminals to process combat information for battle staffs. It provides automated assistance in the collection, storage, review, and display of information to support the commander's decision process. Both text and map graphics are provided to the user.

**Operational Requirement.** MCS provides an integrated picture of Fire Support, Air Defense, Intelligence and Electronic Warfare, and Combat Service Support to produce a common picture of the battlefield. It provides critical, time-sensitive information to shorten the decision-cycle process. MCS provides an automated, on-line, near-real-time capability for planning, coordinating, monitoring, and controlling tactical operations. It is the force-level commander's information system.

**Program Status.** The MCS Block IV Program is in the Engineering and Manufacturing Development (EMD) phase scheduled for an Initial Operational Test and Evaluation (IOT&E) in FY02.

#### **Force XXI Battle Command Brigade and Below System (FBCB2)**

**Description.** FBCB2, mounted on a variety of platforms, provides situational awareness and C2 functionality to the warfighter. The system consists of FBCB2 hardware and/or software integrated into the various platforms at brigade and below, as well as appropriate division and corps slices (including RC elements supporting the Counterattack Corps) necessary to support brigade operations. The FBCB2 hardware consists of a computer employing commercial-off-the-shelf components in a ruggedized central processing unit case, display, and keyboard. FBCB2 integrates emerging and existing communications, weapon, and sensor systems on a single display. It interfaces with the Army Tactical Command and Control System



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(ATCCS) at brigade and battalion levels across all BFAs. FBCB2 is a subelement and key component of the ABCS.



**Operational Requirement.** FBCB2 is a joint interoperable, digital, battle command information system for brigade level and below commanders. It is designed to provide dismounted/mounted combat elements with near-real-time, integrated situational awareness information and C2 functionality. FBCB2 will enhance the ability of tactical commanders to better synchronize their forces, achieve agility, and gain a “feel” of the battlespace through improved situational awareness and better combat awareness reporting while on the move.

**Program Status.** FBCB2 is in the EMD phase. We are currently fielding EMD models, have already fielded a division, and are ready to field IBCTs this year. Awaiting an IOT&E date (1QFY02).

### **Joint Tactical Radio System (JTRS)**

**Description.** JTRS will provide a family of affordable, high-capacity, modular communications systems for line-of-sight (LOS) and BLOS command, control, communications,

computers, and intelligence (C4I) capabilities for the warfighter. This system is being designed as a secure, multiband, multimode, software reprogrammable, digital communications system that will support the broad range of C4I requirements.

**Operational Requirement.** The system will maintain interoperability with legacy systems while advancing to future wireless communications technologies.

**Program Status.** The JTRS is currently in the software communications architecture (SCA) development and validation phase.

### **Global Broadcast Service (GBS)**

#### **Description.**

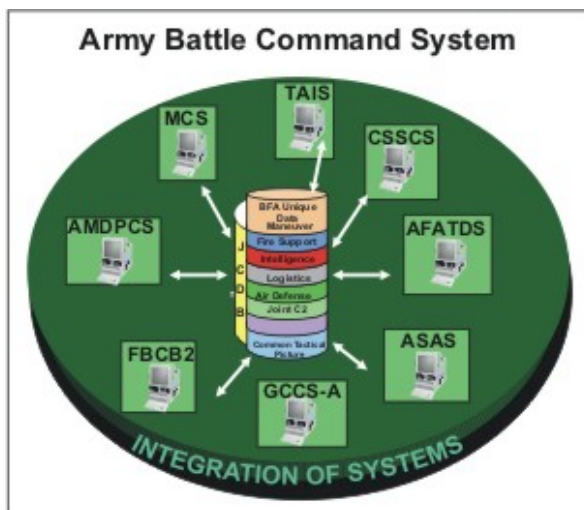
GBS is an integrated communications system consisting of uplink injection sites, broadcast satellites, receive terminals, and management processing.



**Operational Requirement.** It augments Military Satellite Communications (MILSATCOM) systems and provides high-speed, one-way information flow of high-volume data and multimedia information.

**Program Status.** The effective date for the Modified Table of Organization and Equipment (MTOE) is late November 2001/early 2002.

## **Army Battle Command System (ABCS)**



**Description.** ABCS is the Army's component of the GCCS. It is a complex system of systems that provides the mechanism to receive and transmit information among the joint forces. ABCS consists of subsystem software that provides specific support for the BFAs. Additionally, common software products enable information sharing with other systems and provide situational awareness of the battlefield to every echelon. By integrating the ABCS components through common software products such as the Joint Common Database (JCDB), the common tactical picture can be viewed at any workstation and within the operator's specific requirements.

**Operational Requirement.** Each of the ABCS subsystems and associated programs are essential to the digitization of the total force. The objective of ABCS is increased lethality, survivability, operational tempo (OPTEMPO), and sustainability through information dominance,

battlefield visualization, and situational awareness.

**Program Status.** The Army will continue to fund ABCS integration to support digitization of III Corps, IBCTs, and other high-priority users.

## **Single Channel Anti-Jam Manportable (SCAMP) Block II**

**Description.** SCAMP Block II is a Tactical MILSTAR LDR and higher data rate AEHF, C2 satellite terminal.



**Operational Requirement.** SCAMP Block II provides worldwide, anti-jam, low probability of intercept and detection, and assured voice and data communications to the joint warfighter.

**Program Status.** SCAMP Block II is in EMD.

## **Warfighter Information Network-Tactical (WIN-T)**

**Description.** WIN-T is the next generation terrestrial communications and information system, which currently consisting of TRI-TAC and



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the MSE systems. WIN-T provides simultaneous voice, data, and video services.

**Operational Requirement.** WIN-T is the Army's objective tactical digital communications network that will provide tactical networking for the deployed warfighter.

**Program Status.** WIN-T commences its EMD phase in FY02.

### **Multi-band Integrated Satellite Terminal (MIST)**

**Description.** Multi-Band Integrated Satellite Terminal (MIST) is the long-range plan for the natural migration into a single terminal with C, X, Ku, Ka and EHF band capability. MIST will expand frequency band flexibility and joint interoperability while reducing the tactical and logistics footprint of satellite communications (SATCOM) assets required for range extension and reachback communications to support the joint warfighter on the discontinuous and extended battlefield.

**Operational Requirement.** MIST is the ground segment tactical satellite terminal for the future Advanced Wideband System (AWS) and future EHF systems. It directly supports Army Transformation by providing reduced numbers of systems, communications on-the-move, and easier deployment. Finally, it is interoperable with FY10 legacy military and commercial multichannel SATCOM systems.

**Program Status.** MIST commences its EMD phase in FY07.

### **Forward Area Air Defense Command and Control System (FAADC2)**

#### **Description.**

FAADC2 collects, digitally processes, and transmits real-time target data, common tactical air picture, and C3I data from Sentinel radars and other sources to Short-Range Air Defense (SHORAD) systems and joint and combined forces. It is employed at divisional and corps levels and is C-130 transportable.



**Operational Requirement.** FAADC2 provides an automated means of transmitting timely target data to SHORAD systems to prevent fratricide and to manage the air battle.

**Program Status.** The program is in the procurement cycle. The FY02 President's Budget (PB02) funds completion of objective system software and fielding of objective capability. Funding completes objective system software development (Block III); implements, tests, and fields the FAADC2 and FBCB2 merger on the handheld computer; supports FBCB2 force development and initial operational tests and evaluations; meets first digitized division, first digitized corps, and IBCT needs; supports the development of a HUMRAAM fire direction center capability on FAADC2; and implements full horizontal and vertical interoperability. Funding also initiates fielding of associated software capabilities. The PB02 funds the fielding of nine ARNG SHORAD units

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and two AC SHORAD units with an objective FAADC2 capability (Block III engagement operations and force operations software hosted on the Air and Missile Defense Workstation (AMDWS) CHS-2 and -3 workstations). PB02 funding initiates development of the Block IV software capabilities, such as tactical information broadcast service integration, tracking of EPLRS-equipped aircraft, and alternative data communications. Funding for additional FAADC2 for ARNG enhanced Separate Brigade (eSB) Air Defense Artillery (ADA) batteries and ARNG divisional battalions was sought but remains an unfinanced requirement in PB02.

#### **Air and Missile Defense Planning Control Station (AMDPCS)**



**Description.** AMDPCS fully automates C4ISR; integrates Air and Missile Defense (AMD) sensors, weapons, and C3I; and interfaces with ABCS, GCSS, and joint and allied C4I. This system gives the force air space situational understanding. It is employed at division through theater-levels and is C-130 deployable.

**Operational Requirement.** AMDPCS integrates and automates engagement/force operations at all echelons of command.

**Program Status.** The program is in the procurement cycle. The PB02 funds procurement of AMDPCS

configurations for the 32nd Army Air and Missile Defense Command (AAMDC) and AMD brigades and continued software development. The PB02 partially funds procurement necessary to upgrade and materiel release the currently fielded five brigade AMDPCSs and the 32nd AAMDC AMDPCS. It also begins to procure the 263<sup>rd</sup> AAMDC and 111<sup>th</sup> AMD brigade AMDPCSs and continues the development of AMDWS software versions 2.0 through 4.0 and Air Defense System Integrator (ADSI) versions 11.0 and 12.0.

#### **Global Combat Service Support-Army (GCSS-Army)**

**Description.** GCSS-Army is a business and tactical automation enabler for the total Army Combat Service Support (CSS) mission area. It supports the CSS functions of manning, arming, fixing, fueling, moving, and sustaining soldiers and their systems. It is the Army portion of the GCCS. GCSS-Army follows an incremental strategy combining development with fielding of capability packages.

**Operational requirement.** GCSS-Army supports joint, allied, and split-based operations, and provides near-real-time integrated CSS information on a single platform featuring horizontal/vertical integration of data across CSS domains. GCSS-Army will deliver tailored logistics packages and sustainment directly to the strategic, operational, and tactical levels of operations, fusing information, logistics, and transportation technologies. This directly contributes



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to the reduction of the logistics footprint.

**Program Status.** Milestone IIIA review is scheduled for 3QFY01. Development of all packages will be completed by 2QFY03 with fielding completed by 1QFY05.

**Combat Service Support Control System (CSSCS)**

**Description.** CSSCS is a decision support system that utilizes multiple sources of logistics data to better support the warfighter and battle management process. CSSCS provides a concise picture of unit requirements and support capabilities by collecting, processing, and displaying information on key items of supplies, services, and personnel that commanders deem crucial to the success of an operation.

**Operational Requirement.** CSSCS is the automated C2 system that provides the logistics component of the ABCS. By rapidly collecting, storing, analyzing, and disseminating essential logistics, medical, transportation, services, and personnel information, CSSCS assists both the tactical and the CSS commander. It will be fielded to the brigade level for combat and combat support units, and to the battalion level for CSS units.

**Program Status.** CSSCS received Milestone III approval for full-scale production in April 1997 and is currently fielded to III Corps, the 2nd Armored Cavalry Regiment and XVIII Corps to CSS battalion level. Version 4 software development to be completed

in FY01 provides enhanced capability and functionality.

**Transportation Corps Automated Information Management System (TCAIMS II)**



**Description.** TCAIMS II is a joint service migration system that provides an integrated set of transportation applications to facilitate movements and management of personnel, equipment, and supplies from home station to the conflict and back. It is a source feeder system to the Joint Operation Planning and Execution System (JOPEs), the Global Transportation Network (GTN), and transportation component commands for common user lift.

**Operational Requirement.** TCAIMS II enables rapid deployment, planning, and execution. The warfighter gets hands-on capabilities for planning and executing unit moves, asset management, and an enabler for in-transit visibility and C2.

**Program Status.** The system has completed the Army Test and Evaluation Command (ATEC) customer test for each of the armed services. It is being utilized in the Joint Chiefs of Staff (JCS) Millennium Challenge Exercise, and there is a prototype operational in U.S. Army Europe (USAREUR).

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## **Advanced Field Artillery Tactical Data System (AFATDS)**

**Description.** The AFATDS is a U.S. Army and U.S. Marine Corps automated C2 system for fire support operations. It provides the singular command, control, and communications (C3) solution to the complex problem of integrating, coordinating, and controlling all fire support assets.

**Operational Requirement.** AFATDS is deployed to all levels from field artillery firing platoon level through echelons above corps in both the Active and Reserve Components. AFATDS provides the fires portion of the ABCS and interfaces with joint and allied fires and C2 systems. A key element of the combined-arms force, AFATDS coordinates employment of aircraft and land- and sea-based indirect fire systems to support maneuver operations. AFATDS analyzes available fire support assets and applies commander's guidance to attack targets based on an optimal fire support solution. AFATDS replaces the Initial Fire Support Automated System (IFSAS) and will eventually replace the Battery Computer System (BCS) in cannon units and the Fire Direction System (FDS) in rocket/missile units.

### **Program Status.**

AFATDS received its Materiel Release Decision in FY96, and is currently in the procurement and fielding phase. AFATDS software will be upgraded through periodic software releases.



The improved capabilities of AFATDS, the Forward Entry Device (FED), and other fire support systems that contribute to the maintenance of information dominance during the near- and midterms. However, AFATDS will not meet the requirements of the Army after 2010. A draft AFATDS Operational Requirements Document (ORD) specifies requirements for the long-term, identifying requirements for an effects-based system. An effects-based system will have the capability to establish, alter or terminate sensor-to-shooter links in seconds without lengthy coordination, and will have visibility and management authority over all fires assets without regard to source—including air, naval, and space systems. The planned Effects Control System (ECS) program will meet those requirements. ECS program funds begin in FY08. A funding gap between the last version of AFATDS and the beginning of ECS will be addressed during the budgeting process.

## **Assessment**

The Command, Control, and Signal Systems functional area comprises joint and Army command, control, and communications systems, which require a seamless infrastructure for the dissemination of information. These systems provide the TI, both local and long-distance telephone calls, desktop computing, and data exchange services for the deployed/tactical Army element. As the requirements for our force changed to enhanced mobility, deployability, and information superiority, they validated our planned modernization of the command, control, and communications

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infrastructure. We must continue the maintenance, selected upgrade, and modernization of our legacy systems. In most cases, these legacy systems will transition to the Objective Force. The others will require resources to maintain our current capabilities of combat overmatch until units are fielded with modernized equipment.

Command, Control, and Signal Systems support the Army Transformation. Selected upgrades are being applied to most legacy systems to ensure relevance for

today's requirements. However, funding priority remains with systems for the Objective Force. The level of funding for the information infrastructure must remain consistent with the combat systems it supports. Technology will allow us to transform and support the requirements of a strategically responsive force. In addition, the programs within the Command, Control, and Signal Systems serve as the spearhead for interoperability and commonality throughout the Army, joint, and allied forces.

## **Intelligence and Electronic Warfare (IEW)**

### **Overview**

Army Military Intelligence provides commanders, operators, and other consumers specific, relevant, timely, and accurate information and finished intelligence in any format they request. Army Military Intelligence is the “eyes” and “ears” of the commander and the Army.

There are four IEW core competencies—collection; Intelligence, Surveillance and Reconnaissance (ISR) integration; analysis; and presentation—that enable the commander to employ combat capability more effectively and faster than the enemy. The effective use of intelligence allows commanders to defeat the enemy before they can conduct operations on their terms. Fundamental to success of the IEW functional area is analysis at the point of decision across the operational spectrum and at all echelons. Additionally, intelligence must be fully integrated into the near fight as well as deep operations. This dictates that

some intelligence capability must always be forward with the warfighter.

At the same time technology provides us the means to minimize our footprint forward, the increasing complexity of operations dictates that no one echelon can do it all. Therefore, the IEW functional area will rely heavily on reachback and collaborative operations. Split-based, distributed operations will become the standard in all future IEW efforts. Force deployability and force protection, to include Information Operations (IO) and Measurement and Signature Intelligence (MASINT), dictate that we embrace these concepts and

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incorporate them into our modernization efforts.

Finally, the mission essential tasks of intelligence—Intelligence Preparation of the Battlefield (IPB), situational awareness, target development, support to force protection, indications and warnings, and battle damage/combat assessment—are as valid in the Objective Force as they are today. Only the complexity and requirement to operate simultaneously on multiple parts of the operational spectrum will change. The IEW force of the future will be better able to provide these capabilities to the commander.

## **IEW Modernization in Support of Transformation**

### **Overview**

The Army faces a major challenge with regard to its current and future intelligence, surveillance, reconnaissance, and targeting support (ISRT) ground-processing and analysis architecture. Of fundamental concern is satisfying the commander's need for unambiguous, concise, accurate, and timely information; and achieving this in a strategic and operational environment that requires the rapid deployment of forces in response to crises. For Army Intelligence, this mandates a fundamental change in the approach to single-source, multi-source, and all-source intelligence. The current architecture of multiple ISRT ground processing systems, each aligned with either a specific intelligence discipline or a specific collector, is no longer operationally or economically viable. While each of the

current systems addresses a validated need, when viewed collectively as a comprehensive architecture or system, they do not achieve the integrated/network-centric solution needed to achieve information dominance for current and future Army and joint warfighters. In fact, when operating as a family-of-systems, these systems can build a confusing picture of the battlespace, due to interoperability failures and overlapping time- and location-based analysis. The focus must be on the common processing capabilities required for the Intelligence and Electronic Warfare (IEW) Battlefield Functional Area (BFA) to improve its operational contribution. Likewise, IEW must reduce its footprint and logistical requirement by migrating toward smaller, more deployable, more capable, multiple intelligence (multi-INT) elements, consistent with Army Transformation.

IEW systems are an integral part of each phase of Transformation. At any given time during the Transformation, the IEW functional area will have legacy, interim, and objective systems in the field. Legacy systems such as GUARDRAIL Common Sensor (GRCS), Airborne Reconnaissance Low (ARL), and Joint Surveillance Target Attack Radar System (JSTARS) Common Ground Station (CGS) will be sustained and provided upgrades to guarantee maintenance of critical warfighting readiness. Systems are being fielded to the Interim Force to fill near-term capability gaps that exist today. Interim systems fall into two categories: (1) systems such as the Hunter Unmanned Aerial Vehicle (UAV) and Ground Surveillance Radars (GSR) that will be replaced as soon as



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new capabilities are fielded and (2) legacy-to-objective systems such as the All Source Analysis System (ASAS) that will go through a spiral development process with block upgrades until they reach the Objective Force. The only IEW system that is solely an objective system is Aerial Common Sensor (ACS) that is in the early stages of research and development.

Today's highly intensive levels of employment for Army forces and the postulated increase in peacekeeping missions and other vital noncombat uses require that robust and multi-capable IEW capabilities be maintained during transitions. Therefore, an incremental or migration approach leading to a fully capable objective system is required. The migration plan must modernize some existing systems and develop new systems where existing systems will not suffice.

The transformed intelligence system of systems enables the commander to take advantage of supporting intelligence collection, production, and dissemination conducted at all echelons. As an example of the economies that will be achieved in this Transformation, the current corps and EAC airborne Signals Intelligence (SIGINT) collection mission currently performed by two systems, GUARDRAIL Common Sensor (GRCS) and ARL, will in the Objective Force be performed by one system, ACS. The same consolidation of missions is taking place at the division level as we migrate numerous SIGINT and electronic attack systems into a common platform, Prophet. This is a

significant step forward in meeting our task of providing SIGINT in support of wide area surveillance and force protection to the division and brigade commanders.

Additionally, our current suite of tactical systems that exploit national capabilities includes several platforms at the corps and division levels that provide SIGINT and Imagery Intelligence (IMINT). With the fielding of the Tactical Exploitation System (TES) and the Division Tactical Exploitation System (DTES), the same essential information processing will be accomplished with a significantly reduced number of vehicles. This not only improves deployability and reduces in-theater footprint, but it also allows for a more tailorable capability to provide the same access to information in all situations across the spectrum of conflict.

The Army is taking MASINT from a scientific and technical focus to bringing those capabilities (e.g., hyperspectral, overhead non-imaging infrared, derived products from Synthetic Aperture Radar (SAR)) to the fight in support of all-source intelligence. Specifically, we are currently conducting a MASINT Integrated Product Team (IPT). The IPT is validating requirements for integration of MASINT capability into legacy (ARL-Multifunction) and objective IEW systems (Tactical UAV (TUAV), ACS, Prophet, Distributed Common Ground System-Army (DCGS-A) and ASAS).

We are continuing to develop a Computer Network Exploitation (CNE) capability to support Computer

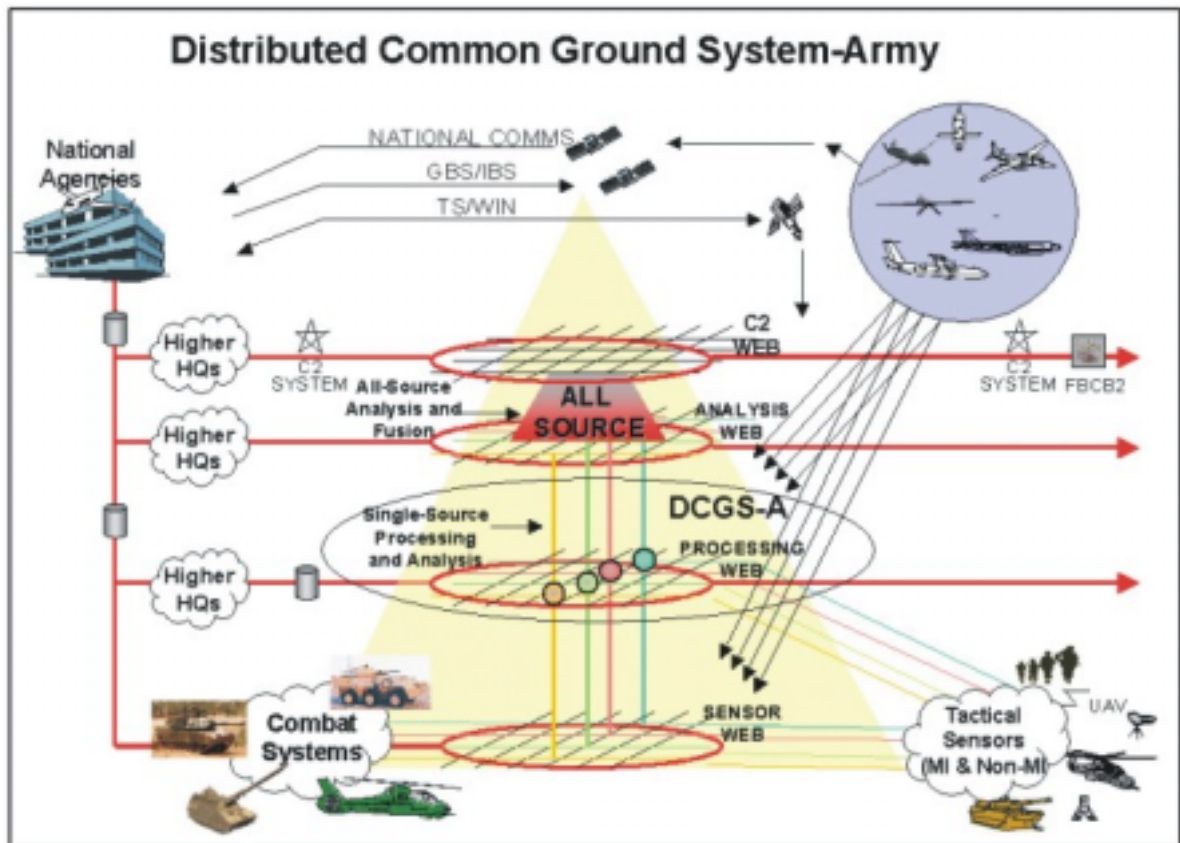
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Network Attack (CAN) and intelligence support to Computer Network Defense (CND). Information dominance funding allows tactical forces to leverage existing and emerging communications and data mining technology to tie together analytical expertise with Army, joint, and national databases to support the commander.

The most significant initiative that will occur in the transformation of the IEW functional area is the developmental effort that will begin with the DCGS-A architecture. DCGS-A is a multi-INT, interoperable ISRT family-of-systems infrastructure. It provides combat commanders concise, accurate, and timely data, information, single, multi-source, and all-source intelligence that is unambiguous. The objective is to provide this in a format, preferably digital, which can be easily understood and used for operational decision making without further detailed analysis. The tenets are dynamic, sensor/collector access, robust processing in a small footprint, tactical, wheeled, vehicle-mounted, operating in a split-based concept, capable of linking to purpose-built systems (both IEW and non-IEW), and able to dynamically build profiles and alerts to assist the analyst in detecting and reporting critical events. This family-of-systems is constructed with modular and scaleable components that range from fixed-based to stand-alone workstations.

The Army envisions developing DCGS-A in three phases. The initial phase is on going. Its focus is on achieving interoperability at the message-format level. This phase will be completed by FY00. The second

phase runs concurrent with the initial phase and begins the migration of current systems to achieve an interim capability. This capability will be based on the movement towards common components of these IEW elements and increased database interoperability. Additionally, the Army will develop the DCGS-A transition architecture through an evolutionary merging of existing and programmed ground station elements (GUARDRAIL Integrated Processing Facility, TES, CGS, TUAV Ground Control Station/Tactical Control System (GCS/TCS), Prophet Control, etc.) and the procurement of new component capabilities as required. The planned completion date for Phase 2 is FY07. The final phase achieves the objective architecture. The anticipated completion date is FY15. The objective architecture envisions a ubiquitous form of internetting and a network-centric concept of operations with truly common components that are scaleable and modular. This type of architecture enhances real-time delivery of information to the warfighters. It enables the warfighter to become the "front-end" of the architecture. The architecture leverages commercial and coalition products and services and injects new capabilities, allowing rapid reconfiguration without major expenditures. All architecture components will comply with Service, joint, and national interoperability standards. Components of the DCGS-A architecture will exist at each echelon from battalion to EAC. The DCGS-A concept is depicted in the following figure.



### IEW Modernization Priorities

The top priority for IEW modernization is the migration to the DCGS-A to the system-of-systems construct. DCGS-A will be developed and seamlessly integrated with the ASAS; together, they represent the tasking, processing, exploitation, and dissemination (TPED) architecture for the Army at every echelon. The Army's TUAV program is a close second to DCGS-A. It will provide dedicated and responsive targeting information to the maneuver brigade commander. The development of additional sensor payloads and extended range and loiter time will enhance location and identification of targets in support of deep fires and precision operations. The TUAV program will evolve into the Army's multi-INT, unmanned aerial platform.

Next in priority is the Army's ACS program. This is the Army's only purely objective system and is in the early stages of R&D. ACS will be the Army commander's multi-INT, manned aerial platform. The Counterintelligence/Human Intelligence Information Management System (CHIMS) that provides CI/HUMINT soldiers with automated support for the collection, analysis, and dissemination of HUMINT and CI information is also high on the list of priority systems. CHIMS is the CI/HUMINT source for DCGS-A and the IEW subelement of the ABCS. Critical for Army transformation is the Prophet system. Prophet is currently the division commanders' ground-based SIGINT collector, but it will evolve into the Army's multi-INT, ground-based platform. Last in priority, but critical for

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IPB is the Integrated Meteorological System (IMETS). IMETS receives, processes, and collates forecast, observations, and climatological data to produce timely and accurate analysis of the impact of current and projected weather conditions on both friendly and enemy personnel and weapon systems.

The other IEW systems listed are being fielded to the Legacy Force and will transition to the Objective Force as block improvements are made to the system. The legacy to objective systems will be fielded to the IBCTs as well as surrogate systems such as Hunter UAV, GSRs, and remote sensor devices until the objective systems are able to replace them. The Legacy Force systems will be funded so that they remain viable, but additional improvements will be limited.

### **Discussion of equipment**

The following legacy systems are currently being fielded and are being built to threshold requirements only with minimal upgrades to maintain relevance against the threat or safety of flight issues. The resources saved from this strategy are being committed to legacy systems that will migrate to the Objective Force or in the research and development of the ACS.

#### **JSTARS Common Ground Station (CGS)**

**Description.** JSTARS is a joint Army/Air Force program. The airborne platform has a multimode radar capable of wide-area surveillance and synthetic aperture modes. A Surveillance and Control Data Link

(SCDL) provides secure communications. Orbiting a safe distance from the Forward Line of Troops (FLOT), the radar scans a wide area of the battlefield. The radar data is received by Army and Air Force operators aboard the aircraft and then downlinked to multiple CGSs via the SCDL. CGS will become the brigade DCGS-A element.



**Operational Requirement.** Army CGS is a mobile, tactical, multisensor ground station that receives, displays, processes, and disseminates, in near-real-time, targeting and intelligence information to all echelons. The system can detect, locate, track, classify, and assist in attacking both fixed and moving targets beyond the FLOT, during daylight and darkness, and in nearly all weather conditions. In addition to receiving Joint STARS radar data, the CGS is capable of receiving and displaying UAV imagery as well as signals intelligence data via an integrated Joint Tactical Terminal (JTT).

**Program Status.** A total of 79 Low-Rate Initial Production (LRIP) platforms have been procured. An Acquisition Decision Memorandum (ADM), signed in August 2000, authorized the Army to proceed to CGS Full Rate Production (FRP) for the remaining 21 systems to



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meet the APO of 100 (96 CGS and four JSTARS workstations). The program will become a component of the ACGS-A.

### **GUARDRAIL Common Sensor (GRCS)**

**Description.** GRCS (RC-12) is a corps-level, fixed-wing SIGINT collection and target location system that supports the EAC, corps, division, and Joint Force Land Component Commander (JFLCC) by detecting, identifying, exploiting, and precisely locating threat radios, radars, and other electronic emitters throughout the area of interest. GRCS includes an Integrated Processing Facility (IPF) for ground processing, and an interoperable datalink connects airborne and ground processing elements. GRCS supports split-based/extended range operations via direct satellite relay and is interoperable with U.S. Air Force COMINT systems.



**Operational Requirement.** GRCS provides signals intercept and precision target location of threat communications and noncommunications emitters. This multidiscipline intelligence collection system satisfies the Army's critical need for a worldwide, self-deployable, airborne, reconnaissance, intelligence, surveillance, and target acquisition capability.

**Program Status.** Planned upgrades for GRCS will be limited to flight safety requirements and maintaining relevance to threat and interoperability issues. The air platforms will migrate to the ACS in the Objective Force. The IPF will be replaced by a component of the DCGS-A in the near term and move to the Objective Force.

### **Airborne Reconnaissance Low (ARL)**

**Description.** ARL consists of a modified DeHavilland DHC-7 fixed-wing aircraft equipped with Communications Intelligence (COMINT), IMINT, and Moving Target Indicator (MTI)/SAR mission payloads. ARL is a multifunction, day/night, all-weather reconnaissance and intelligence asset that is self-deployable/self-sustaining (7-10 days). It has an endurance of eight hours and a ceiling of 25,000 ft. The ARL range with maximum payload is greater than 1,400nm.



**Operational Requirement.** ARL is an EAC-level asset that provides the ability to detect, locate, and report threat activities using a variety of imagery, communications intercept, and MTI sensor payloads. The low profile allows ARL to deploy to host countries. ARL provides counter-drug and counterinsurgency support to CINC Southern Command (CINCSOUTH) and daily reconnaissance/ surveillance for CINC Pacific Command/U.S. Forces Korea (CINCPAC/USFK); it assists the

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Federal Emergency Management Agency (FEMA) with imagery of disaster areas and supports other non-DoD agencies.

**Program Status.** One ARL-Multifunction (ARL-M) just completed production and is currently being fielded (FY01). Congress provided \$30 million in FY00 for a replacement aircraft for a system lost in a SOUTHCOM crash. It will be fielded in the FY03/04 timeframe. The retrofit of two aircraft to the multifunction configuration will be completed in FY02. Limited upgrades are being performed to maintain relevancy until the objective ACS platform is fielded. Most of the IEW equipment currently being fielded will transition to the Objective Force. A deliberate plan of block improvements, spiral development, and modular technology allows IEW systems to evolve to the Objective Force. IEW systems will increase in capabilities as block improvements are integrated. Capabilities being fielded today represent only threshold requirements in the Objective Force.

### **The Tactical Unmanned Aerial Vehicle (TUAV)**

**Description.** Each TUAV system consists of three UAVs, two GCSs, one portable GCS, and four remote video terminals that can provide near-real-time video to commanders on the ground. The UAVs currently have an on-board electro-optic (EO)/infrared (IR) sensor payload. The threshold range is 50km with an objective range of 200km and an on-station endurance of four hours. The threshold payload is 60lbs with an objective capacity of

100lbs. OPTEMPO requirements a threshold of 12 per 24-hours and an objective of 18 per 24 hours.



**Operational Requirement.** The TUAV is the ground maneuver commander's primary day/night Reconnaissance, Surveillance, and Target Acquisition (RSTA) system. It provides the commander with enhanced situational awareness, target acquisition, battle damage assessment, and enhanced battle management capabilities.

**Program Status.** A production contract was awarded in December 1999 with four LRIP systems delivered for Initial Operational Test and Evaluation (IOT&E) in FY01. The Army Acquisition Executive will decide in February 2001 whether to pursue a second LRIP purchase of four systems. First unit equipped is set for April 2001. The Initial Operational Capability will be in June FY02. The program was accelerated by two years in the FY02-07 Plan. The program is fully funded to procure the Army Acquisition Objective of 44 systems.

### **Tactical Exploitation System (TES)**

**Description.** TES Main and Forward replaces the Advanced Electronic Processing and Dissemination System (AEPDS), the Enhanced Tactical Radar Correlator (ETRAC), and the Modernized Imagery Exploitation



System (MIES). It combines the functionality of three separate systems into a single, integrated, scalable system designed for split-based operations. TES consists of Forward and Main elements. The TES Forward is a highly mobile, HMMWV-mounted element, and the TES Main is housed in vans. Each element has similar operational, communications, and support capabilities. TES is designed to provide the commander maximum flexibility to satisfy intelligence needs in a wide range of operational scenarios. TES provides multiple configurations, ranging from a one C-130 deployable HMMWV early-entry capability to collocated Main and Forward elements with up to 40 operator workstations. TES operators can perform an imagery intelligence, SIGINT, cross-intelligence (Cross-INT), or dissemination function from any system workstation. TES processes data from U-2, Global Hawk, Predator, F/A-18, and national systems. It can provide sensor and platform control of the U-2, and interoperates with the GUARDRAIL IPF. The Division TES (DTES) replaces the Mobile Integrated Tactical Terminal (MITT) at division. The DTES is composed of two HMMWV-mounted shelters providing robust RF and terrestrial communications capabilities, Generic Area Limitation Environment (GALE) for SIGINT analysis, secondary imagery

dissemination functionality, and a Cross-INT capability. It can be transported on a single C-130.

**Operational Requirement.** TES serves as the interface between national systems and in-theater tactical forces. Additionally, it receives data directly from selected theater sensor systems. TES will become the DCGS-A element at EAC, corps, and division.

**Program Status.** TES Main and TES Forward were fielded to XVIII Airborne Corps in FY00. Two additional TES Mains (513th Military Intelligence and V Corps) and one Forward (513th Military Intelligence) will be fielded in FY01. One TES Forward will be fielded in FY02. TES will migrate to ACGS-A in the near term. All Army divisions are scheduled to receive the DTES. Fielding began in FY01 with the first DTES delivered to the 82nd Airborne Division. The remaining systems will be delivered over the next four years with the last delivered to the 25th ID in late FY05.

### **The All Source Analysis System (ASAS)**

**Description.** ASAS comprises three components: the Analysis and Control Element (ACE), the Remote Workstation (RWS), and the Analysis and Control Team-Enclave (ACT-E).



The ASAS ACE is the intelligence analyst's primary tool for fusing the intelligence that is collected from multiple sources and then passed to the warfighter. It disseminates the fused intelligence picture to the warfighter via

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the RWS. It is located at the corps/division operations centers, EAC intelligence centers, and at Army staffs throughout a theater/joint command. The RWS is the warfighter's primary collateral intelligence source. It operates primarily in a collateral environment down to the brigade level. A laptop version, ASAS-Light, operates at the battalion level. The maneuver brigade commander is also provided additional intelligence support via the ACT-E, a vehicle-mounted shelter containing two RWSs with integrated communications and LAN access capability.

**Operational Requirement.** ASAS is the IEW component of ABCS supporting the warfighter from theater to battalion. In a networked environment, it automates IEW asset management, conducts target nomination, and fuses inputs from multiple intelligence sources to develop the threat picture for the commander's overall situational awareness. This results in a timely, accurate, and common relevant picture throughout all echelons on the battlefield.

**Program Status.** ASAS Block II is in EMD with several components in FRP. The RWS, ACT-E, and ASAS-Light have completed operational testing, and fielding began in FY99, FY00, and FY01, respectively. The ASAS ACE will complete operational test in FY03, with fielding to start in FY04. The ASAS Block III development will start in FY04.

### **Prophet**

**Description.** Prophet provides expanded frequency and area SIGINT

coverage of the battlefield for situational development and awareness and force protection operations. Prophet will support on-the-move and dismounted operations. Programmed block improvements include electronic attack, advanced signals, and MASINT capabilities. Prophet replaces three more costly legacy systems. Prophet gives the commander a dedicated, dynamically retaskable asset. Prophet allows the tactical



commander to visually depict and understand his battlespace and gain situational awareness on the battlefield of the future.

**Operational Requirement.** Prophet provides actionable intelligence (SIGINT/MASINT), in support of IBCT and brigade commanders throughout the entire spectrum of operations. It gives the commander a comprehensive picture of electronic emitters in his battlespace and provides the ability to collect, locate, and electronically attack selected emitters.

**Program Status.** Prophet Block I passed IOT&E in November FY00, completed Milestone III in March FY01, and has entered FRP, with initial fielding scheduled for 4QFY02. The Prophet Air program has been restructured as the Division TUAV SIGINT Payload (DTSP). DTSP will provide enhanced situational awareness to the division commander by electronic mapping of threat



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emitters. DTSP is currently in the Concept Exploration Phase with an expected FUE of FY09.

### **Integrated Meteorological System (IMETS)**



**Description.** IMETS comes in three configurations: vehicle-mounted for division/corps command posts and aviation brigades; desktop version for theater command posts; and laptop version for Special Operations Forces (SOF) and aviation battalions. The IMETS-Light is being fielded to the IBCT. The Air Force Combat Weather Team, attached to Army units, operates the system. It receives weather information from civilian and defense meteorological satellites, Air Force Global Weather Central (AFGWC), artillery meteorological and remote sensors, and civilian forecast centers. IMETS processes and collates forecasts, observations, and climatological data to produce timely and accurate weather products tailored to the specific warfighter's needs. The weather effects graphics display the impact of the weather on current or planned operations for both friendly and enemy forces, allowing the warfighter to more effectively employ his forces and weapon systems to achieve success in battle.

**Operational Requirement.** IMETS provides commanders at all echelons

with an automated weather system that receives, processes, and disseminates weather observations, and forecasts, and provides environmental effects decision aids to all battlefield operating systems.

**Program Status.** The vehicle-mounted version is in FRP with 27 systems fielded by the end of FY01. The IMETS-Light and Command Post versions are in EMD with testing and fielding planned for FY02.

### **Joint Tactical Terminal (JTT) and Common Integrated Broadcast Service Modules (CIBS-M)**



**Description.** JTT provides the critical data link to battle managers, intelligence centers, air defense, fire support, and aviation nodes across all Services. It links the intelligence systems of Army C2, GRCS, ARL, TES, the U.S. Air Force's U-2 and RIVET JOINT aircraft, and the U.S. Navy's EP3 aircraft. JTT allows Army, Air Force, Navy, and Marine Corps users to exploit intelligence broadcast networks. In addition to receiving Intelligence data, JTT performs a data relay function. JTT is provided for integration into systems on vehicles, aircraft, ships, and fixed sites, and is DoD's single objective Integrated Broadcast Service (IBS) tactical terminal. JTT will migrate to CIBS-M in the midterm. Migration will build on

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proven capabilities and establish joint standards to maximize both interoperability and efficiency. JTT-Briefcase is being developed for the SOF community and others to provide a lightweight, fully integrated, stand-alone system capable of receiving data from the current legacy broadcasts and the future IBS.

**Operational Requirement.** The JTT/CIBS-M provides the joint warfighter with seamless, near-real-time access to tactical intelligence, targeting information, and situational awareness.

**Program Status.** JTT/CIBS-M is in LRIP. The system will be integrated into Army, Air Force, Navy, and Marine Corps host platforms as well as platforms supporting a variety of other DoD agencies. JTT Milestone III scheduled for FY01.

### **Aerial Common Sensor (ACS)**

**Description.** ACS is a critical Objective Force corps and EAC system that satisfies the Army's need for a worldwide, self-deployable airborne ISR asset that can begin operations upon arrival into theater. The ACS ground processing facility will be an integral part of the DCGS-A architecture. The wide-area surveillance and precision targeting data will allow support to targeting and provide commanders at every echelon the tailored intelligence they require. The air platform has not been selected; however, sensor payloads will include COMINT, ELINT, IMINT, and MASINT to include EO, IR, SAR, MTI, multi- and hyperspectral imagery sensors. Intelligence products are distributed to

other consumers using the JTT via the IBS and the GBS.

**Operational Requirement.** ACS is the objective airborne multidiscipline intelligence platform for corps and EAC military intelligence brigades. ACS will merge the capabilities of GRCS and ARL into a multifunctional system (SIGINT, IMINT and MASINT). ACS will provide the precision-targeting data needed by future deep-strike weapon systems and the Objective Force. ACS will support early-entry operations and forward-deployed forces by providing timely indications and warning, dominant situational awareness, battle management, and precision targeting capabilities across the full spectrum of operations.

**Program Status.** An Analysis of Alternatives is ongoing to determine the best means of meeting the ACS requirement, and is scheduled for completion in FY01. ACS is currently in the concept exploration phase. The Component Advanced Development (CAD) is scheduled for 1QFY02, with Milestone B scheduled for 3QFY03. IOT&E and Milestone C are scheduled for FY07. FUE is scheduled for FY09.

### **Assessment**

IEW supports the Army's Transformation strategy by integrating national, joint, theater, and other Service systems into a seamless system of systems to maintain combat overmatch in the near term, while supporting the requirements for the Objective Force in the far term. Selected upgrades are being applied to legacy systems to maintain relevancy, but funding priority remains with

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Objective Force systems. Systems being fielded to the Interim Force as surrogate systems such as Hunter, ground surveillance radars, and remote sensors will fill a void until replaced by objective systems. As we migrate to more technologically advanced collection, processing and dissemination capabilities, we will also take advantage of the technology that allows us to do that with fewer systems in the theater of operations. This not only reduces in-theater footprint, but also makes the commander's organic intelligence suite more deployable and mobile once in theater. Most importantly, the improved capabilities that will result from this transition will empower the combat commander to visualize his battlespace, make timely decisions, and use his available combat power as effectively as possible. While this section focuses on requirements and capabilities that are specifically found in IEW, the comprehensive intelligence and combat information structure includes scouts, reconnaissance helicopters, air defense and artillery radar systems, and Army SOF with organic collection and processing capabilities. The coordinated and synchronized efforts of all these assets will provide the tactical commander with the knowledge he needs to defeat the enemy.

The IEW modernization strategy will support Army Transformation in accordance with requisite timelines. Timely, accurate, and focused intelligence will contribute directly to the increased lethality and survivability required for full spectrum operations. Legacy systems will be maintained until they are replaced by objective systems. New systems will be fielded

to the Legacy and Interim Forces and be upgraded and improved as technology allows. R&D funding for objective systems will also continue to be one of our top priorities. The IEW modernization strategy supports the Transformation of the Army into a responsive force able to operate efficiently in contingencies that range from humanitarian assistance to a major theater conflict.

## **Engineer Component**

### **Overview**

In the challenging and complex environment of the 21st century, the Army will continue to place emphasis on the ability to have information superiority over the threat. Engineer assets provide key enablers to accomplish this task. To support information superiority for the joint force, Engineers seek to capitalize on the insertion of technologies that enhance the information superiority of the force. The Maneuver Control System-Engineer (MCS-Eng) will provide a capability to insert engineer-specific realities into the Army's Maneuver Control System (MCS) while providing engineers all necessary maneuver data. Tele-Engineering Operations will operate on common C2 architecture and provide rapid solutions to the deployed forces from a nondeployed consolidated knowledge base. As the Army leaves the Industrial Age and enters the Information Age, both MCS and MCS-Eng directly support Transformation.

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## Discussion of Equipment

### **Maneuver Control System-Engineer (MCS-Eng)**

**Description.** MCS-Eng is an Engineer mission planning and rehearsal C2 system, which provides the maneuver commander and his staff (corps and below) with automated assistance to execute precise, near-real-time C2 of combat forces. MCS-Eng will be an engineer-specific software system subordinate to the MCS. It is software that will reside on MCS version 7.XX. MCS-Eng will operate on the Army Tactical Command and Control System (ATCCS) common hardware, provide engineer information to MCS via the Joint Common Database, and allow engineer access to maneuver data.



**Operational Requirement.** The system will provide automated C2 to Engineer staffs and commanders.

**Program Status.** In the RDT&E phase, a resulting engineer module will be integrated into the Army's MCS.

### **Tele-Engineering Operations**

**Description.** The overarching concept for Tele-Engineering is the exploitation of the Army's C3 architectures to provide a linkage between engineers and the appropriate nondeployed

subject matter experts (SMEs) for resolution of engineer challenges. This exploitation will allow Engineer SMEs to evaluate the problem, engage in dialogue with the deployed commands performing the work, and provide solutions to the problem. Solutions to the problems being addressed will exploit state-of-the-art technologies from the Army R&D community, SMEs within the Training and Doctrine Command (TRADOC) community, DoD high performance computing assets, the expertise of U.S. Army Corps of Engineers districts and divisions, private sector construction industry experience, and the knowledge base of academia.

**Operational Requirement.** The system will provide rapid solutions to the DoD in support of all engineer mission requirements using C2 architecture and existing communication systems.

**Program Status.** The U.S. Army Engineer Research and Development Center (ERDC) is currently developing and demonstrating under the proponentry of the U.S. Army Maneuver Support Center (MANSCEN).

## **Assessment**

Engineer-specific IS systems support the Army's Transformation strategy by supporting the Legacy, Interim and Objective Forces. The MCS-Eng is a fully functional component of the MCS family that inserts Information Age technology into the Legacy and Interim Forces. It will be fielded with Objective Force capability. Like the Digital Topographic Support System



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(Dominant Maneuver) the MCS-Eng provides the maneuver commander with the terrain and geospatial engineering information needed to fight and win on tomorrow's battlefield. Tele-Engineering Operations is an operational reality today. This

technology uses standard communications technologies to bring Engineer subject matter expertise to the battlefield. Both of these technologies are relatively inexpensive, easy to incorporate, and invaluable when needed.